

RECENT ADVANCES IN THE METHODS OF EXTRACTING STONE
FROM THE BLADDER.

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RECENT ADVANCES
IN THE
METHODS OF EXTRACTING STONE FROM
THE BLADDER,

BY

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IT will be taken for granted at the outset, that the subject defined in the foregoing title is intended to include any improvement in operating either by Lithotomy or by Lithotrity.

And first, I think it may be affirmed that, of the two methods named, Lithotomy does not afford so much scope for the consideration of improvements as the operation by crushing. Dominated as lithotomy must be, for the most part, by anatomical conditions which do not change, and perfected as it has been by the experience of centuries, the slight modifications of procedure occasion-

ally proposed are often due rather to the idiosyncrasies of different operators, than to the discovery of any new or important fact. For the most part, the plan of incision known as the lateral method ('la taille latérale') is adopted throughout Europe, America, and the East, with slight variations in different localities; an important exception being Paris, where median operations, in the form of medio-bilateral or prerectal, are mostly preferred. There is one modification, however, which requires to be noticed, relating rather to the mode of dealing with the stone itself, than to the method of making the incisions. Doubtless the success which lithotrixy achieved has led to the proposal, which in varied forms and in several quarters has been made, viz. to combine a limited degree of incision with the crushing operation; a plan which was more systematically pursued by the late Dr. Dolbeau of Paris than by any other surgeon. Dolbeau's method, which he termed 'perineal lithotrixy,' consisted in making a median incision in front of the anus, limited to the urethra; in forcibly dilating the neck of the bladder by special instruments; then crushing the stone by forceps introduced through the wound, and abstracting the débris by that route. It is worthy of note that Dolbeau recommended this procedure because 'he knew by experience how great is the relief which follows extraction of all the calculus at a single sitting.'¹ And his method is one which, somewhat modified perhaps, and in exceptional circumstances, as when the urethra is unduly narrow, may offer some advantages. But serious risk may be incurred by much manipulation for the purpose of removing débris in an empty bladder, as most lithotomists have

¹ *De la Lithotritie périnéale*, p. 42. Paris: 1872. 'Pour ma part, je recommanderais cette pratique si je ne savais par expérience combien est grand le soulagement qui succède à l'extraction d'une pierre faite séance tenante.'

observed, when a large stone has chanced to break in the process of extraction. For it is a fact of practical importance, hitherto not sufficiently noted, but which I desire to affirm in the following formula, viz. *that the act of pushing forceps upwards through a perineal opening into an empty bladder, in order to seize fragments, is more likely to injure the bladder than the act of seizing them with a lithotrite introduced downwards by the urethra into an unopened bladder.* Hence it has been proposed to break a large stone into fragments by means of a powerful lithotrite before performing lithotomy, the incisions required for which are then less extended, and therefore less dangerous, than they would be if the stone is to be removed entire. I can easily conceive that such a proceeding might sometimes be adopted with advantage, and that it is worthy our consideration. Of late, when removing an unusually large calculus by the lateral operation—say of 80 grammes ($2\frac{1}{2}$ oz.) or upwards—I have occasionally crushed it *in situ* by powerful forceps, rather than make a wound sufficiently large to allow me to extract it unbroken;¹ and I am not indisposed, when opportunity offers, first to crush a large and hard stone with a powerful lithotrite, and then remove the fragments by forceps through a perineal opening rather than by evacuating sound in the urethra, especially if this canal be of small or even only average size.

There is, however, at least one exceptional condition, in which the operation of lithotrity and a median perineal incision of the urethra only, may be combined with manifest advantage, and to which I desire to call your attention. Three years ago I had a case of large calculus in a patient aged sixty-seven, whose prostate was of enormous

¹ A new model for such forceps, designed by the author, was shown.

size, and who for some years had removed all his urine by catheter. This he was compelled to do every hour and a half, day and night, owing to the irritation present. In this condition I first crushed and removed most of the calculus by ordinary lithotrity; I then at once placed him in the position for lithotomy, made a small median opening into the membranous urethra, dilating it with my finger, and by means of small lithotomy forceps, extracted some remaining fragments, so as to empty the bladder completely. After this I introduced a short but large gum catheter into the bladder by the perineal wound, and fixed it there; this gave him perfect relief, for he was unable, in common with most patients suffering from hypertrophied and inflamed prostate, to tolerate a catheter tied in by the urethra; but by the means described he had complete repose, and experienced no unfavourable urinary symptom whatever. My friend Mr. J. Morgan, of Chapel Street, London, and Mr. Brewer of Huddersfield, were present and assisted me at the operation. I have no hesitation in regarding this combination of the two proceedings, in the circumstances described, as a valuable addition to our resources in some cases, not very uncommon, where the prostate is large, the bladder contracted, and ability to pass urine by the natural efforts is lost.

Before I quit the subject of lithotomy, let me briefly call attention to the value of an instrument, devised by my friend Mr. Buckston Browne, for arresting hæmorrhage. He has appended to the ordinary lithotomy tube an india-rubber bag, which, introduced in the flaccid state, and subsequently inflated with air, closes at once any source of hæmorrhage distant from the surface, the urine flowing meantime freely through the tube. I know no agent so certain and secure in its action, and as I think no man should perform lithotomy without one of these instruments

at his side, it is named here as an important adjunct to our resources.

The history of Lithotrity, which extends now to little more than sixty years, is, on the other hand, a history of continuous change. The most important epoch in its progress, however, dates from the advent of anæsthesia. Up to this time the application of lithotrites and evacuator was necessarily made subordinate to the patient's powers of endurance, the performance being limited by the short period of time at the disposal of the operator, and by the size of the urethra, which could not be much distended without producing acute pain. Indeed lithotrity in its most modern form would not be possible without anæsthesia. But after the introduction of chloroform the surgeon ventured to crush more largely and remove débris more freely than before. Fergusson systematically removed the fragments chiefly by repeated introductions of the lithotrite, and without evacuating catheters; and others who disapproved of that proceeding used the aspirator designed by Clover, and tubes of the natural calibre of the urethra. I may be allowed, perhaps, to say that the first time that instrument was ever used was by myself, Mr. Clover having placed his first instrument in my hands for the purpose. The consequence was, that a calculus of small size was now removed at one sitting instead of at two or three sittings, as before the employment of anæsthesia.

But during the last twelve or fifteen years our American brethren have adopted, chiefly in dilating the strictured urethra, larger instruments than have before been usually employed for the purpose, and they have shown that in a large proportion of cases, although certainly not in all, a bougie of very considerable size—say with a diameter of eight to ten millimetres—may be introduced through the urethra into the bladder, and often without

injuring the parts. It has been more fully demonstrated than at any previous time, perhaps, that the healthy urethra is, in most instances, very distensible. And this fact seems first to have suggested the possibility of employing larger evacuating tubes and a more powerful aspirator than had hitherto been used. It occurred to Professor Bigelow, of Harvard University, that by adopting larger instruments he might remove a hard calculus of considerable size at a single sitting, and so in this respect rival lithotomy in its one admitted advantage of emptying the bladder completely at once. He accomplished this design more or less successfully in a few cases, and soon came to the conclusion that the bladder was left in a condition of greater safety when no fragment remained to irritate it, although the operation had been unusually prolonged and severe, than when, after a much less irritating employment of instruments, portions of the calculus were left still unremoved. The same conviction which led Dolbeau to perform long and severe manipulation through the perineal wound and distended neck of the bladder, in order to empty it at a single sitting, has led Bigelow to aim at achieving the same result by lithotripsy instruments through a distended urethra.

The procedure of Bigelow consists simply in a bolder and more extended application of the two agencies—viz. crushing the stone and washing out the débris—which have long been adopted and recognised as constituting the operation of lithotripsy. For this purpose he adopts a more powerful lithotrite, a larger evacuating catheter, and a stronger india-rubber bottle; and he uses them for a longer time than has been customary with previous operators. He insists that it is necessary to crush more and to evacuate more than heretofore; but the essence of the change proposed and the value of his idea lies in the

alleged greater safety to the patient, attained by emptying the bladder in all cases completely at a single sitting. To him is due the improvement, whatever it may be, which the realisation of this idea achieves; and I shall be glad if to any extent, however humble, I may contribute towards the elucidation of this point, which is still to some extent perhaps a question *sub judice*.

Rather more than two years ago I adopted after a few trials the one-sitting method as a rule, not binding myself to its employment for every case, but reserving, according to my judgment of the varied circumstances which present themselves, the lateral operation of lithotomy for exceptional cases; and in one case only of lithotrity employing four sittings for a stone of very large size, where the patient was not deemed capable of enduring prolonged etherisation. The result is somewhat more favourable than any I have before attained, so far as the numbers thus treated (at present not very large) enable me to judge.

My entire experience during this period, regarding the adult male only, amounts to 101 cases: their histories form an Appendix, containing all details, and the names of the medical men who have seen the cases with me.

Of these 101 cases, I have operated on 89 by lithotrity at one sitting; 86 have recovered, and only 3 have died.

One case of lithotrity at four sittings, referred to, made a good recovery.

Ten cases were operated on by lateral lithotomy, of which 6 recovered and 4 died.

One case of median lithotomy, which recovered.

Total, 101 cases of lithotomy and lithotrity in adults; recoveries, 94; deaths, 7.

My assistant, Mr. G. Buckston Browne, has in my absence during the same period operated on 13 cases of lithotrity at one sitting, 12 of whom recovered and 1 died.

The time at my disposal (fifteen minutes) does not permit me to discuss many interesting points connected with the foregoing cases, and furnished in the Appendix. I will therefore only offer a few remarks, grounded on my experience, in the form of brief practical deductions therefrom.

And first I will observe that, in order to attain the object proposed by performing lithotrity at a single sitting, in a very large majority of cases no modification of pre-existing instruments is necessary. Of course each operator may, and often does, prefer some little difference in form or action, devised by himself, to those adopted by another. But inasmuch as the great bulk of calculi met with are under 20 grammes (5 drachms) in weight, instruments larger than those hitherto used are, as a rule, unnecessary. I can scarcely insist on a more important axiom regarding lithotrity than this, viz. that the lithotrite and evacuating catheter should in all cases be of the smallest size consistently with power to effect the removal of the calculus at one sitting. When the stone is larger than those hitherto usually removed by lithotrity, then, but only then, should the instruments be larger. For although it is incontestable that larger instruments than those heretofore used may be applied in urinary passages of average size, by somewhat unnaturally distending them; yet it is no less certain that the employment of large instruments is attended by risks which are absent with small instruments—a fact which to my knowledge has been too often overlooked. I do not hesitate to assert that the important practical difference between the instruments employed by most experienced lithotritists up to three years ago, and those which have been recently introduced by Professor Bigelow, is this—that the former are limited in size by the natural calibre of the urethra, while the

latter frequently require the urethra to be distended to a size beyond that which is natural. I have known large lithotrites and evacuators, such as I have never found necessary in any case, to be employed for the purpose of applying Bigelow's procedure to small calculi, with disastrous result; meaning by the term small calculi such as have hitherto been removed by small instruments with almost uniform success; the unnecessarily large instruments having occasioned injury to the urethra, followed by severe rigors and a fatal result. I state a simple but significant fact, familiar to experienced surgeons, that many a urethra will admit a bougie of No. 12 or 13 English (22-24 French) without any unpleasant consequences; while if No. 16 or 17 English (28-30 French) be passed, severe constitutional disturbance will certainly follow. Much discredit will speedily attach to lithotrity in this newest phase thereof, if we do not adhere to that most important rule of practice, viz. always to remove the stone by the smallest possible amount of mechanical action. And I assert that this can only be done by employing instruments which are conformable in size to that of the stone itself, and never adopting unduly heavy and powerful mechanism unless the exceptional size of the calculus demands it. The great value of lithotrity is discredited by indifference to a rule so obviously desirable.

And allow me to remark here, that it is no less a flagrant error to ignore so completely the resources of our art, and to disregard experience in the application of them, as to adopt any form of lithotomy when the stone is so small that it may be easily crushed in five minutes with a small lithotrite. Yet I have known lithotomy, not only lateral, but suprapubic, gravely adopted here in such conditions, and fatal results gratuitously incurred—to me circumstances of the deepest regret.

And this leads me to observe, in the second place, after very grave consideration of the subject, that there is no surer means of attaining increased success from operative proceedings at the present time, than by teaching the importance of Diagnosis, so as to ensure a suitable application of means to ends in removing the stone. I am certain that no one principle in my own experience has, so much as that, conduced to the saving of life among calculous patients; and also to the avoiding of subsequent chronic disease among those who recover. When the importance of adopting the method and the instruments best fitted for each case of stone—a result which can only be effected by first ascertaining the size and nature of the body with which we have to deal—is fully appreciated, greater success will be attained than has ever previously been achieved, or than can be attained by adopting any single method of operation, however complete it may appear to be.

Thirdly, a great improvement in the results of calculus operations will be effected when the immense importance of ascertaining the presence of the stone as early as possible in the history of each case is understood. It cannot, in our teaching, be too strongly asserted that in almost all instances when there is calculus in the bladder, unmistakable signs of its presence are manifest to the intelligent observer, and that its existence should be verified without delay—a result always possible at an early stage. If this were done, every calculus might be removed by lithotripsy at a single sitting, without recourse to any extraordinary means. This doctrine I have taught unceasingly on all occasions for many years, having long been profoundly impressed with its importance; and this is still more apparent as the method of operating becomes more perfect and efficient.

To conclude: I venture to submit that the progress which has been made in the art of extracting the stone from the male bladder during the last few years may be summed up under the following heads:—

1. In operating by lithotrity, there appears to be conclusive evidence in favour of the practice of emptying the bladder of a stone at a single sitting when practicable, even although the manipulation and the instruments demand a greater expenditure of time and more disturbance than have been hitherto deemed admissible; provided only that the instruments employed shall never be larger than the nature of the stone demands.

2. In operating by lithotrity for certain rare cases, important results may be attained by combining with it an incision into the urethra from the perineum, for the purpose of withdrawing urine, or even some fragments of the stone.

3. In perineal lithotomy for a stone which is unusually hard and large, it is often advantageous to use modern approved methods of breaking up the stone before removing it, rather than to withdraw it entire, so that the operator may avoid unnecessarily extended incisions, or rupture of the neck of the bladder.

4. In the exercise of careful diagnosis, first as to the existence and then as to the size and nature of the calculus in every case, with the view of selecting the operation best suited for it, and always adopting that which shall inflict the least injury, or even disturbance, in the organs involved.



APPENDIX.

Containing details of all the Cases referred to in the Paper.

Eighty-nine Cases of Lithotripsy at 'One Sitting' in the Adult Male.

CASE 1.—A gentleman, aged 54. December 16, 1878. Oxalate and phosphate, weighing 97 grains; in 9 minutes. Sent to me by Mr. Spencer Wells, who was present at the operation. Occasionally forms phosphates, and washes out the bladder to remove them.

CASE 2.—A gentleman, aged 66. December 16, 1878. A uric acid calculus, weight 84 grains; removed at one sitting in 7 minutes. He had some fever and impaired health for several weeks, but ultimately recovered; had no more symptoms, and is now in good health. Seen with Dr. Taylor, of Camberwell.

CASE 3.—A gentleman, aged 43. December 21, 1878. Oxalate of lime, small; in one sitting; 42 grains. No fever or other untoward symptoms after; quite well up to present time. Mr. Spencer Wells was present at the operation.

CASE 4.—A gentleman, aged 72. December 22, 1878. I had crushed a calculus five and a half years before, and he had been free from symptoms until about twelve months ago. I removed now, in one sitting, a phosphatic calculus, weight 154 grains, in 8 minutes; a slow but sound recovery. He draws off all his urine by catheter. Dr. Sutro was present.

CASE 5.—A gentleman, aged 64. January 6, 1879. Uric acid and phosphatic mixed, which had caused much suffering. Much relieved; he passes all his urine by catheter. Dr. A. K. Longhurst was present. A little removed at a second sitting a day or two after.

CASE 6.—A gentleman, aged 69. January 22, 1879. Uric acid, weighing 172 grains; in 11 minutes. Sent to me by Mr. Lathbury, of Finsbury. Successful. This patient had also diabetes.

CASE 7.—A gentleman, aged 68. January 31, 1879. Uric acid, weighing 114 grains; in 9 minutes. A rapid recovery. Sent to me by Mr. J. H. Walters, of Farringdon.

CASE 8.—A gentleman, aged 79. February 12, 1879. Phosphatic, weighing 194 grains; in 12 minutes. I had cut him a year before, removing four uric acid calculi. He made a quick recovery, but passes, as before, all his urine by catheter, from enlarged prostate. Mr. Clover gave ether on both occasions.

CASE 9.—A gentleman, aged 65. February 13, 1879. Phosphatic, 116 grains; in 6 minutes. He passes most of his urine by catheter. Sent by Mr. Holberton, of Hampton.

CASE 10.—A gentleman, aged 69. March 15, 1879. Uric acid, 200 grains; in 10 minutes. A few fragments were removed at two explorations soon after. A good recovery. Seen with Dr. Bantock, who was present at the operation.

CASE 11.—A gentleman, aged 65. March 15, 1879. Uric acid. Dr. Bantock, Dr. Muir, and others present. A good recovery.

CASE 12.—A youth, aged 16. March 28, 1879. Oxalates and urates mixed; rather small. Mr. Cadge and Mr. R. Harrison present.

CASE 13.—A gentleman, aged 82. March 23, 1879. Phosphatic, about 60 grains. Dr. Smith, of Great Hadham, present.

CASE 14.—A gentleman, aged 47. March 28, 1879. Pure triple phosphate, weighing 94 grains; in 7 minutes. Sent to me by Dr. Mitchell of New Cross, who was present at the operation; as were also Mr. Cadge and Mr. Reginald Harrison.

CASE 15.—A gentleman, aged 63. June 2, 1879. Phosphatic, weighing 68 grains; in 6 minutes. Mr. Bailey gave ether; Dr. Keyes, of New York, was present. He has to pass a catheter three times a day, not emptying his bladder naturally.

CASE 16.—A gentleman, aged 66. June 2, 1879. Uric acid, weighing 175 grains; in 10 minutes. Recovery complete. Seen with Dr. G. O. Rees, who was present at the operation.

CASE 17.—A gentleman, aged 70. June 12, 1879. Uric acid, weighing 198 grains; in 10 minutes. Recovery complete. Sent to me by Dr. Ryott, of Newbury, who was present at the operation.

CASE 18.—A gentleman, aged 70. June 25, 1879. Mixed oxalates and urates, weighing 214 grains; in 12 minutes.

Recovery complete. Seen with Dr. George Johnson, who was present at the operation.

CASE 19.—A gentleman, aged 60. June 20, 1879. Oxalate of lime, weighing 165 grains; in 9 minutes. Recovery complete. Seen with Mr. Morgan, of Sussex Place, and his son, who gave ether.

CASE 20.—A medical man, aged 41. July 16, 1879. Phosphatic, weighing 208 grains; in 15 minutes. I removed 10 grains subsequently. He had orchitis and fever, and made a slow recovery.

CASE 21.—A gentleman, aged 78. July 19, 1879. Uric acid, weighing 329 grains; in 25 minutes. At his age, Mr. Clover preferred not to give ether longer, and I postponed the proceeding three days, removing then 192 grains more in 13 minutes, making a total of 521 grains (or nearly 1 ounce and 1 drachm) of very hard uric acid. Recovery complete. Sent to me by Mr. Quain, of Cavendish Square, and is well now (1880).

CASE 22.—A gentleman, aged 58. July 31, 1879. Uric acid, weighing 145 grains; in 11 minutes. Recovery complete. Seen with Dr. George Johnson, who was present at the operation.

CASE 23.—A French gentleman, aged 67. July 31, 1879. Uric acid and some phosphate, weighing 40 grains. Dr. George Johnson and others present. A rather tedious recovery, never emptying his bladder except by catheter.

CASE 24.—A gentleman, aged 56. August 7, 1879. Uric acid, weighing 106 grains; in 10 minutes. Mr. M. B. Hill and Mr. John Morgan present. Some irritation of the bladder continued, and was troublesome for a few weeks, and then subsided.

CASE 25.—A gentleman, aged 56. August 13, 1879. Uric acid. Has some narrowing of the urethra at three and a half inches from the orifice, so that a smaller evacuating catheter than usual had to be attached to the aspirator. Weighed 123 grains; in 12 minutes. Sent to me by Dr. Kidd; Mr. John Morgan, and Dr. Lebec of Paris, present. A good recovery.

CASE 26.—A gentleman, aged 54. August 19, 1879. Uric acid, weighing 45 grains; in 6 minutes. Mr. John Morgan present. A good recovery.

CASE 27.—A gentleman, aged 70. August 16, 1879. Phosphatic, weighing 42 grains; in 5 minutes. A good recovery.

CASE 28.—A gentleman, aged 65. December 5, 1879. Uric acid and oxalate, weighing 40 grains; in 5 minutes. His attendant, Dr. Marsden, of Grosvenor Street, was present. A good deal of irritation followed; and although no phosphatic deposits or cystitis appeared, he passes water frequently, although without pain or blood. Otherwise he is quite well.

CASE 29.—A gentleman, aged 55. December 3, 1879. Uric acid. I removed 158 grains at a sitting of 10 minutes, leaving a little more in the bladder, which I removed (29 grains) a day or two after. Mr. William Rose, of King's College Hospital, was present. An excellent recovery.

CASE 30.—A gentleman, aged 62. January 1, 1880. Uric acid, weighing 98 grains; in 8 minutes. Sent to me by Dr. Moore, of Lancaster. A good recovery.

CASE 31.—A gentleman, aged 57. January 22, 1880. Uric acid, weighing 65 grains; in 5 minutes. Sent to me by Mr. J. E. Williams, of Whitstable. A somewhat tedious recovery, but he gradually attained an improved condition.

CASE 32.—A gentleman, aged 70. February 28, 1880. Uric acid, weighing 308 grains, in 18 minutes; finding 15 grains more three days after. Mr. Henry Smith, of King's College Hospital, saw this case with me. A rapid and complete recovery.

CASE 33.—A gentleman, aged 66. March 2, 1880. Uric acid, weighing 78 grains; in 6 minutes. Dr. George Johnson was present at the operation. A rapid and complete recovery.

CASE 34.—A gentleman, aged 65. March 20, 1880. Uric acid, weighing 51 grains; in 4 minutes. Sent to me by Dr. Handfield Jones. He had orchitis, and made a rather slow but complete recovery.

CASE 35.—A gentleman, aged 73. April 26. Uric acid, weighing 96 grains; in 9 minutes. Mr. Erichsen, and Mr. Furner of Brighton, were present. A good recovery.

CASE 36.—A gentleman, aged 71. May 24, 1880. Uric acid with phosphates, 76 grains; in 7 minutes. Brought by Dr. Charles Mott, of Walton, who was present at the operation. He had a large prostate; did not empty the bladder, and was taught to use a catheter twice a day. An excellent recovery.

CASE 37.—A gentleman, aged 61. May 19, 1880. Uric acid, weighing 78 grains. Mr. Furner, of Brighton, present. A somewhat slow but good recovery.

CASE 38.—A gentleman, aged 70. May 29, 1880. Phosphatic, weighing 184 grains. He was seen by Mr. Lund, of Manchester. He came to me greatly broken in health, with severe symptoms, which I at first regarded as chiefly renal, and did not suspect to be complicated with calculus. Finding one subsequently, I thought it right to remove it at one sitting, and this much relieved him; but he slowly sank about five weeks afterwards, with advanced pyelitis, dilated ureters, and purulent deposits in the kidney.

CASE 39.—A gentleman, aged 67, from Hamburg. June 3, 1880. Uric acid and oxalate, weighing 142 grains. Mr. Lund, of Manchester, was present. He made a good recovery. He had some enlargement of the prostate; did not quite empty his bladder, and learned to do so with a catheter every night.

CASE 40.—A gentleman, aged 50. June 21, 1880. Chiefly phosphatic, with little uric acid, weighing 105 grains. Dr. Harker, of Lancaster, and Dr. Carpenter, of New York, were present. He made a good recovery.

CASE 41.—A gentleman, aged 70. June 21, 1880. Weak physically and mentally, with a very large prostate, so that the calculus could only be seized with reversed blades. Uric acid, weighing 80 grains. Brought to me by Dr. Harker, of Lancaster. There was at first no ground for anxiety; but in a few days he had fever and an attack of bronchitis, of which he died on July 5.

CASE 42.—A gentleman, aged 68. June 26, 1880. Uric acid calculus, weighing 76 grains. Sent to me by Dr. James McCulloch, of Dumfries. Made a rather slow recovery, from persisting chronic cystitis.

CASE 43.—A gentleman, aged 72. July 3, 1880. A phosphatic calculus, weighing 78 grains. Dr. Bainbridge, of London, who brought him to me, and Dr. Weir, of New York, were present. He had long passed all his urine by catheter from enlarged prostate, and of late with distressing frequency. He is now, four weeks afterwards, enjoying freedom from all pain. Clear urine, and retains it four hours.

CASE 44.—A gentleman, aged 77. July 10, 1880. Uric

acid, weighing 265 grains ; in 18 minutes. Professor Humphry, of Cambridge, was present. He is making an excellent recovery. He called on me, July 8, 1881, absolutely free from symptoms, and in perfect health.

CASE 45.—A gentleman, aged 46. July 10, 1880. Uric acid, weighing 96 grains. Sent to me by Dr. Wynn Thomas, of Birmingham. Professor Humphry, of Cambridge, was present. He has had a good deal of irritation, but it is gradually subsiding, and has, indeed, almost disappeared.

CASE 46.—A gentleman, aged 79, retired medical man. July 14, 1880. Has passed no urine, except by catheter, for three years, from enlarged prostate. Phosphatic, weighing 128 grains. Mr. Eddowes, of Shrewsbury, was present. A rapid recovery.

CASE 47.—A gentleman, aged 29. August 5, 1880. Small oxalate of lime. Brought me by Mr. Furber, of Kensington, who, with Dr. Joseph Warren, of Boston, and Mr. F. S. Edwards, of Bartholomew's School, was present. He made a rapid recovery.

CASE 48.—A gentleman, aged 55. August 9, 1880. Uric acid. Brought to me by Mr. Harris, of Mildenhall, who, with Dr. J. Warren, was present at the operation. Good recovery.

CASE 49.—A gentleman, aged 60. August 16, 1880. Uric acid, small. Brought to me by Dr. Way, of Eaton Square, who was present at the operation. A good recovery.

CASE 50.—A gentleman, aged 48. August 17, 1880. A small uric acid calculus. Mr. E. Milner, of the Lock Hospital, present. An excellent recovery.

CASE 51.—A gentleman, aged 77. August 14, 1880. Uric acid ; weight 97 grains. Brought to me by Mr. Tegart, of Jermyn Street, who was present at the operation. An excellent recovery.

CASE 52.—A gentleman, aged 73. August 17, 1880. Uric acid ; weight 318 grains. Removed in 15 minutes. His medical attendants, Dr. Clothier, of Highgate, and Mr. Milner, present. An excellent recovery.

CASE 53.—A gentleman, aged 52. August 23, 1880. Uric acid, small. Mr. J. Morgan, and Dr. Warren of Boston, present. Good recovery.

CASE 54.—A gentleman, aged 54. August 17, 1880. Mixed

urates and phosphates, weighing 136 grains. Brought to me by Dr. Abud, who was present. Made a good recovery.

CASE 55.—A gentleman, aged 64. August 27, 1880. Uric acid, weighing 130 grains. Sent by Mr. J. C. Lindop, of Newport, Salop. An excellent recovery.

CASE 56.—A gentleman, aged 61. August 30, 1880. Mixed urate, oxalate, and phosphate, weighing 175 grains. Dr. Clothier, of Highgate, present. Good recovery.

CASE 57.—A gentleman, aged 62. September 13, 1880. Uric acid. Dr. MacLoughlin present. Excellent recovery.

CASE 58.—A gentleman, aged 54. September 28, 1880. Uric acid. Mr. Swinford Edwards present. An excellent recovery.

CASE 59.—A gentleman, aged 70. August 14, 1880. Phosphatic. Mr. John Morgan present. Recovery rapid and complete.

CASE 60.—A gentleman, aged 63. September 21, 1880. Phosphatic calculus, small, lying behind a large prostate. For 8 years he had passed all his urine by catheter. He made a good recovery.

CASE 61.—A gentleman, aged 63. September 27, 1880. Multiple uric acid; weight 108 grains. Brought to me by Dr. Macnaughten Jones, of Cork, who was present at the operation. Good recovery.

CASE 62.—A gentleman, aged 60. October 15, 1880. Uric acid. His medical attendant, Dr. Birt, of Stourbridge, present. Very obstinate cystitis, associated with phosphatic deposit, appeared soon after a very easy and short operation by one sitting. This continued some months, only gradually diminishing. He was seen with Dr. Andrew Clark.

CASE 63.—A gentleman, aged 48. November 6, 1880. Uric acid, small. Very obstinate cystitis followed, just as in the preceding case, without known cause; but made a perfect recovery in 2 or 3 months. Sent to me by Dr. James Sawyer, of Birmingham.

CASE 64.—A gentleman, a surgeon, aged 71. October 29, 1880. Uric acid. Mr. Charles Moss gave ether. Returned to his practice in a few days, never having had a bad symptom.

CASE 65.—A gentleman, aged 36. November 6, 1880. Small uric acid. Mr. Ceely, of Aylesbury, present. Recovery rapid and complete.

CASE 66.—A gentleman, aged 70. November 12, 1880. Large hard phosphatic calculus; weighed 360 grains. Seen with Mr. Curgenvén, of Bayswater. No bad symptoms. Three days afterwards removed a few grains of calculous material. This was followed by pain in right ureter and kidney, rigors, and suppression for about 24 hours. He rallied, but gradually sank on the 6th day after the second sitting.

CASE 67.—A gentleman, aged 62. November 10, 1881. Mixed oxalate and phosphate, weighing 60 grains. Sent to me by Dr. Kidd. An excellent, rapid recovery.

CASE 68.—A gentleman, aged 73. February 3, 1881. Uric acid; weight 104 grains. I operated at Gand, Belgium, with Dr. Bodaert. Some months later Dr. Bodaert wrote to me that the patient was driving daily, and that the operation was ‘un succès magnifique.’

CASE 69.—A gentleman, aged 60. February 8, 1881. Phosphatic calculus, weighing 96 grains. Dr. Chepmell and Dr. Barton Smith present. The patient had long passed all his urine by catheter, owing to atony of the bladder. He was now suffering very severely, losing much blood, and greatly reduced; but he rapidly regained his health, lost all symptoms of stone, and is now well and active.

CASE 70.—A gentleman, aged 48. February 25, 1881. Phosphatic calculus, weighing 280 grains. Sent me by Dr. Andrew Clark. Dr. Philpot, of Dulwich, was present at the operation. The patient had a narrow stricture, for which he first came to me; this was dilated, and the stone found. Rapid recovery.

CASE 71.—A gentleman, aged 75. March 16, 1881. Uric acid, weighing 46 grains. Sent by Dr. Kidd. Mr. Frauklin, of Putney, present at operation. Recovery complete.

CASE 72.—A gentleman, aged 67. March 18, 1881. Uric acid, weighing 106 grains. Sent by Dr. Hayle, of Rochdale. This patient was the subject of diabetes. After the operation there was fever and much cystitis. The urine remained bloody from 4 to 5 weeks. After this he lost power to empty the bladder, and learned to use a catheter. Urine deposited phosphates. Chronic cystitis remained for some time, but gradually subsided, and he now drives about without pain, and his health has greatly improved; but he is still diabetic.

CASE 73.—A gentleman, aged 55. March 18, 1881. Uric

acid, weighing 175 grains. Mr. Kent, of the Middlesex Hospital, present. Some cystitis followed the operation, which was troublesome for a few weeks. Ultimately he made a complete recovery.

CASE 74.—A gentleman, aged 71. April 14, 1881. Phosphatic, weighing 80 grains. Seen with Mr. Thomas Bond, of Westminster. Successful.

CASE 75.—A gentleman, aged 64. March 28, 1881. Uric acid, weight 54 grains. Dr. A. Eccles, of Bayswater, present. Recovery was rapid and complete, and he shortly resumed his practice as a surgeon in Plymouth.

CASE 76.—A gentleman, aged 65. April 30, 1881. Mixed urates and oxalates, weight 104 grains. Sent by Dr. Best, of Birmingham, who was present at the operation. Made a good recovery. He had enlarged prostate, and passes a catheter four times daily.

CASE 77.—A gentleman, aged 70. May 25, 1881. Uric acid, weighing 105 grains. Sent me by Mr. Patten, of Ealing, who was present at the operation. An excellent recovery.

CASE 78.—A gentleman, aged 68. May 25, 1881. Uric acid, weighing 55 grains. Mr. Patten, of Ealing, present. Good recovery.

CASE 79.—A gentleman, aged 65. June 7, 1881. Uric acid, weighing 124 grains. Sent to me by Mr. Byam, of Westbourne Place, Eaton Square, who was present at the operation. He is recovering slowly.

CASE 80.—A gentleman, aged 66. June 3, 1881. Mixed urates and phosphates, weighing 125 grains. Seen with Mr. Blackstone, of Regent's Park. Recovery excellent and rapid.

CASE 81.—A gentleman, aged 71. June 8, 1881. Phosphatic, weighing 112 grains. Mr. Charles Moss gave ether. Recovery rapid and complete.

CASE 82.—A gentleman, aged 67. June 11, 1881. Uric acid, weighing 62 grains. Sent by Dr. Orr, of Fleetwood, Lancashire; Dr. Curtis, of Boston, present. Recovery rapid.

CASE 83.—A gentleman, aged 30. June 11, 1881. Phosphatic, weighing 180 grains. He came to me from South Africa. Dr. Curtis, of Boston, present. Recovery rapid and complete.

CASE 84.—A gentleman, aged 51. June 14, 1881. Uric acid

weighing 80 grains. Dr. Kidd sent him to me. Dr. Imschoot, of Ghent, present. Good recovery.

CASE 85.—A gentleman, aged 68. June 27, 1881. Oxalate of lime, weighing 30 grains. Sent to me by Mr. Evershed, of Arundel. Dr. Imschoot, of Ghent, present. A good recovery.

CASE 86.—A gentleman, aged 59. June 27, 1881. Uric acid, 112 grains. Sent to me by Dr. Clay, of Plymouth. Dr. Belfield, of Chicago, present. Some fever followed the operation, but he made a good recovery.

CASE 87.—A gentleman, aged 72. June 13, 1881. Phosphatic, weighing 46 grains. Mr. Charles Moss gave ether. Good recovery.

CASE 88.—A gentleman, aged 24. July 7, 1881. Phosphatic calculus, weighing 246 grains. Seen in consultation with Dr. W. M. Ord, who was present at the operation.

CASE 89.—A gentleman, aged 74. July 12, 1881. Phosphatic calculus, weighing 95 grains. Seen with Dr. E. R. Butler, of Kensington, who was present at the operation.

Eleven Cases in which Lithotomy was performed during the recent period, in which the 'One Sitting' Lithotomy was adopted as the rule.

CASE 1.—A gentleman, aged 74. May 9, 1879. With Mr. Goolden at Maidenhead. Death.

CASE 2.—An Irish gentleman, aged 62. February 11, 1880. With Dr. G. Johnson of London. Successful.

CASE 3.—A gentleman from New Zealand, aged 33. May 21, 1880. Seen with Mr. Christopher Heath and others. Successful.

CASE 4.—An Irish gentleman, aged 52. June 1, 1880. Sent to me by Dr. Thompson, of Belfast. Successful.

CASE 5.—A gentleman, aged 58. June 10, 1880. Sent to me by Mr. Curgenven, of Derby. Successful.

CASE 6.—A gentleman, aged 62. July 13, 1880. Brought to me by Dr. Bright, of Forest Hill. Successful.

CASE 7.—A gentleman, aged 69. August 18, 1880. Uric acid, large. Seen with Dr. Hullet Browne and Dr. Davies. Owing to the enormous size of the prostate, lithotomy was not deemed advisable. Death.

CASE 8.—A gentleman, aged 68. September 28, 1880.

Urates and oxalates. Mr. Swinford Edwards present. The stone was large, and so irregular in outline that it could not be extracted, and had to be broken up with screw forceps in the bladder. All went well for ten days, when secondary hæmorrhage occurred. For a time he seemed likely to recover, but he gradually sank, and died 35 days after operation.

CASE 9.—A gentleman, aged 54. October 23, 1880. Urates and phosphates, large; health very imperfect. Seen with Dr. Turnour, of Denbigh. Died 31 days after operation, of diseased kidney.

CASE 10.—A gentleman, aged 29. November 6, 1880. A tumour and phosphatic calculus. Median operation; excellent recovery. He had been crushed a year before, but stone soon returned. On sounding I thought I could detect an impacted calculus; determined on cutting him, and asked some friends to be present, among them Mr. Ceely, of Aylesbury, Dr. Seegen of Vienna. It proved to be a pedunculated tumour coated with phosphatic matter. I twisted it out entire by means of small lithotomy forceps. He made a rapid recovery, and has been well ever since. The tumour is in my possession; it is larger than a walnut.

CASE 11.—A gentleman, aged 67. February 26, 1881. Oxalate of lime. Sent to me by Dr. Kidd. Went home quite well in 28 days.

Thirteen Cases of Lithotrity at One Sitting operated on during the same period by my assistant, Mr. G. Buckston Browne.

CASE 1.—A gentleman, aged 68. September 19, 1878. Phosphatic calculus, weight 140 grains. Mr. Clover gave ether. Went home well in 10 days.

CASE 2.—A gentleman, aged 63. October 1, 1878. Phosphatic calculus, weight 120 grains. Mr. Clover gave ether. Besides the stone there was malignant disease of the bladder, and although relieved by the operation, he died in January following.

CASE 3.—A gentleman, aged 81. October 23, 1878. Phosphatic calculus, weight 130 grains. Seen with Dr. Smith, of Little Hadham, Herts. Made a capital recovery, and went home well on November 6.

CASE 4.—A gentleman, aged 65. September 12, 1879. Phosphatic, weight 40 grains. Soon went home well.

CASE 5.—A gentleman, aged 69. September 20, 1879. Multiple uric acid calculi, weight 120 grains. Seen with Dr. Horace Dobell. Made a good recovery.

CASE 6.—A gentleman, aged 63. October 8, 1879. Phosphatic calculus, weight 160 grains. Seen with Dr. Palfrey. Went home well in 12 days.

CASE 7.—A gentleman, aged 63. October 10, 1879. Mixed uric and phosphatic calculus, weight 154 grains. Seen with Dr. R. T. Smith, of Haverstock Hill. Success perfect.

CASE 8.—A gentleman, aged 72. December 17, 1880. Phosphatic calculus, 90 grains. Mr. Charles Moss gave ether. Excellent recovery.

CASE 9.—A gentleman, aged 76. December 30, 1880. Phosphatic calculus, weight 120 grains. Mr. Charles Moss gave ether. The patient had for seven years drawn all his urine by catheter. He was much relieved by the operation, and went home well.

CASE 10.—A gentleman, aged 62. January 8, 1881. Uric acid calculus, weight 40 grains. Mr. Charles Moss gave ether. Success perfect.

CASE 11.—A gentleman, aged 55. February 5, 1881. Uric acid calculus very hard, weight 312 grains. Mr. Moss gave ether. All went well for two days, when he became feverish, and he died in a week with symptoms of uræmic poisoning. Throughout the urine was clear, and free from blood and mucus. He had for 9 years passed quantities of uric acid calculi, and had several times been to Vichy.

CASE 12.—A gentleman, aged 74. May 24, 1881. Large uric acid calculus, weight 360 grains. Dr. Arcedeckne Duncan, of London, brought him to me, and assisted me at the operation. Complete success.

CASE 13.—A gentleman, aged 70. June 25, 1881. Phosphatic calculus, very large, weight 601 grains. Mr. Charles Moss gave ether. Owing to the great size of the stone the case was a difficult one, and the operation lasted 40 minutes. Excellent recovery.